

NOTES ON BUXUS IN THE LESSER ANTILLES
AND ON MATHOU'S OVERLOOKED PUBLICATIONRICHARD A. HOWARD¹

CRANTZIA SW., TRICERA SW., AND BUXUS L.

THE FIRST NEW WORLD species now assigned to the genus *Buxus* was described by Swartz as *Crantzia laevigata* (Prodr. 38. 1788), based on material collected in Jamaica. In 1797 Swartz (Fl. Ind. Occ. 1: 333. 1797) renamed the genus *Crantzia* as *Tricera* calling attention to the use of the former name by Schreber (Gen. Pl. ed. 8, 1: 143. 1789). Swartz's refusal to continue the use of one of his own generic names, seemingly having priority, occurred in other instances as Rendle has pointed out (Jour. Bot. 35: 20. 1897). In this case, however, *Crantzia* Scopoli (Intr. 173. 1777), not known to Swartz, makes *Crantzia* Swartz illegitimate. Willdenow (Sp. Pl. 4: 338. 1805) described additional species under the name *Tricera*, and Sprengel (Syst. Veg. 3: 847. 1826) transferred all species known until then to the genus *Buxus*. Jussieu (Euphorb. Tentam. 14. 1824) had suggested the close relationship of the two genera. Later, Baillon (Monogr. Bux. 66. 1859) treated *Tricera* as a section of the genus *Buxus*. Britton and his coworkers in a series of local floras and special treatments between 1906 and 1925 re-established the genus *Tricera* as distinct from the genus *Buxus*, but there seems to be no discussion of this action nor any foundation for it. Urban and all other workers on the West Indian vegetation have considered the species as members of the genus *Buxus*.

In a monograph overlooked by subsequent workers, Miss Th. Mathou (Recherches sur la famille des Buxacées; Étude anatomique, microchimique et systématique, Thèse, 1-448. 1939, Toulouse) has re-examined the Buxaceae. She has described new taxa and made new combinations, some legitimate and some illegitimate, but none of them listed correctly, if at all, in Index Kewensis or the Gray Herbarium Index.

Miss Mathou maintained, with emendation, the "section *Tricera* Baillon ex Swartz." She pointed out that the stems of the American species of *Buxus* comprising the section *Tricera* lack cortical bundles and meristemes; have a different petiole structure, and possess several distinctive characteristics in the inflorescence. In a discussion of the sectional status of *Tricera*, Miss Mathou concluded that the combinations of anatomical and external morphological characteristics permitted the recognition of the American

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species as a section but not as a distinct genus. My own investigations of the petiole vascular structure support her work. The distinctive feature of the American species is the origin of the lateral vascular bundles of the petiole from the same stelar gap as the median bundle. In their path through the length of the petiole, these lateral bundles remain distinct. In contrast the Asiatic and African species of *Buxus* may have cortical or medullary vascular bundles in the stem which contribute to the vascular supply of the leaf at the node; and within the petioles the lateral bundles may remain distinct or may become involved with the median in a complicated stelar arrangement. I have found no other character or group of characters which prove satisfactory for recognizing the New World species as a distinct genus. It appears desirable to consider *Crantzia* Sw. and *Tricera* Sw. as synonyms of *Buxus* L.

BUXUS SPECIES IN THE LESSER ANTILLES

A Bredemeyer collection from Caracas, Venezuela is the basis of *Tricera citrifolia* Willd. (Sp. Pl. 4: 338. 1805). In transferring this species to *Buxus* Sprengel (Syst. Veg. 3: 847. 1826) gave the distribution as "*Martinica, Caracas*" but cited no specimens. Baillon (*loc. cit.* 70) cited under this species a Wydler collection from Puerto Rico in the Jussieu and Lessert herbaria. Mueller Arg. (DC. Prodr. 16(1): 15. 1869) described three varieties for *B. citrifolia* with the range Venezuela, Puerto Rico, and Cuba. Variety *genuina* contained the Bredemeyer type. Variety *fuscescens* contained the Wydler specimen from Puerto Rico. Variety *brevipes* was based on *Wright 1919 p. p.* from Cuba. In the same work Mueller described *Buxus subcolumnaris* and cited *Sieber 208* from Martinique and *Wright 1920* from Cuba. Pax (Nat. Pflanzenfam. III, 5: 133. 1896) recognized *Buxus citrifolia* as occurring in Cuba and Puerto Rico and *Buxus subcolumnaris* in Martinique and Cuba. Urban (Symb. Antill. 5: 400. 1908) partially clarified the situation by describing *Buxus muelleriana* based on *Wright 1920* from Cuba, and *Buxus brevipes* based on *Wright 1919*, also from Cuba. Urban recognized *Buxus subcolumnaris* from Martinique but commented about *B. citrifolia* that he could not distinguish between Mueller's variety *genuina* and variety *fuscescens* and was persuaded that the Bredemeyer collection like the Wydler collection came from Puerto Rico. Britton and Wilson (Sci. Surv. Puerto Rico & V.I. 5: 507. 1924) cited Mueller's variety *fuscescens* in the synonymy of *Tricera citrifolia* and stated "Eastern Porto Rico, collected only by Wydler, or perhaps also by Bredemeyer: — Venezuela. A rare plant, known to us from Porto Rico only as recorded by Mueller and by Urban." More recently Mathou (*loc. cit.* 195) has returned to the original confused state regarding the distribution of *B. citrifolia* and cited its range as "Venezuela, Porto-Rico and Martinique."

I have had the opportunity of studying these collections and others in various American and European herbaria. I suggest the correct treatment of these old collections is the following:

Buxus citrifolia (Willd.) Sprengel, Syst. Veg. 3: 847. 1826.

Tricera citrifolia Willd., Sp. Pl. 4: 338. 1805.

Buxus citrifolia var. *genuina* Muell. Arg., DC. Prodr. 16(1): 15. 1869.

This species is endemic to Venezuela. In addition to the Bredemeyer type (*Herb. Willd.* 17384) it is represented by *Fendler 1296* (GH) from Tovar, *Pittier 11016* (GH) from El Carenero, Miranda, and *Pittier 8696* (GH) from El Zigzag on the road from Guaira to Caracas, all in Venezuela. No additional material from Venezuela has been seen in other herbaria.

Buxus subcolumnaris Muell. Arg., DC. Prodr. 16(1): 14. 1869, *p.p.*

Tricera subcolumnaris (Muell. Arg.) Britton, Bull. Torrey Club 42: 498. 1915.

Buxus aquartiana Rich. ex Baillon, Monogr. Bux. 69. 1859.

This species was based on two collections, *Sieber 208* from Martinique and *Wright 1920* from Cuba. Urban has selected the latter collection as the type of *Buxus muelleriana*. *Sieber 208* should, therefore, be considered the type of *B. subcolumnaris*. This species is known only from Martinique and is distinguished from *B. citrifolia* by the fused, narrowed apices of the carpels as well as the longer petioles of the leaves. *Buxus subcolumnaris* and *B. muelleriana* are readily distinguished by their leaf shape and venation.

The manuscript name *Buxus aquartiana* attributed to L. C. Richard and used by Baillon appears on several specimens in the Jussieu and the general herbaria in Paris. The specimens are to be referred to *B. subcolumnaris*. In addition to several specimens of *Sieber 208* I have seen *Duss 578* (NY, P), 4630 (NY), *Hahn 321* (K, P), 969 (GH, K), 1506 (BM, K) and *Richard s.n.* (P), all from Martinique.

Buxus muelleriana Urb., Symb. Antill. 5: 400. 1908.

Buxus subcolumnaris Muell. Arg., DC. Prodr. 16(1): 14. 1869 *p.p.* as to plant of Cuba.

The type of this species is *Wright 1920* from Cuba.

Buxus brevipes Urb., Symb. Antill. 5: 401. 1908.

Buxus citrifolia var. *brevipes* Muell. Arg., DC. Prodr. 16(1): 15. 1869.

The type of this species is *Wright 1919* from Cuba. *Wright 1919*, however, is a mixed collection, another portion being the type of *Buxus acuminata* (Griseb.) Muell. Arg.

Buxus laevigata (Sw.) Sprengel, Syst. Veg. 3: 847. 1826.

Crantzia laevigata Sw., Prodr. 38. 1788.

Tricera laevigata (Sw.) Sw., Fl. Ind. Occ. 1: 333. 1797.

Buxus citrifolia var. *fuscescens* Muell. Arg., DC. Prodr. 16(1): 15. 1869.

Tricera citrifolia sensu Britton & Wilson, Sci. Surv. Puerto Rico & V.I. 5: 507. 1924, not Willd.

A fragment of the collection *Wydler 406* from Puerto Rico was examined in the herbarium at Paris. The specimen is referable to *B. laevigata* (Sw.) Spreng., known from Jamaica and matching well such collections as *Harris 9492* or *Howard & Proctor 15042*. Urban (Symb. Antill. 4: 358. 1910) had suggested that perhaps the Bredemeyer collection was also from Puerto Rico and not Venezuela. It seems more likely that the Wydler collection carries an erroneous label since *B. citrifolia* is represented by more recent collections from Venezuela and neither *B. laevigata* nor *B. citrifolia* has been recollected in Puerto Rico.

The Wydler specimen in Paris bears an annotation of a new specific name attributed to Mueller Arg. The epithet has never been published by Mueller, to my knowledge, but has been used since as *Tricera* (?) *crassifolia* Britton and *Buxus crassifolia* (Britton) Urban, for an entirely different plant from Cuba typified by the collection *Shafer 4163*.

Buxus olivacea Urb., Symb. Antill. 9: 172. 1924.

Mathou's reference to this species as occurring in Martinique (*loc. cit.* 139) is clearly an error and is not supported in the remainder of her study. Urban based the species on *Ekman 4992* from Cuba and Mathou studied only material of *Ekman 9783* also from Cuba, and cited by Urban.

MATHOU'S MONOGRAPH

Miss Mathou's monograph of the Buxaceae, stated in the title to be anatomical, microchemical and systematic studies, has been overlooked by recent workers. Perhaps its obscure publication as a thesis (Faculté des sciences de Toulouse, Toulouse, 1939) and its limited distribution account for the fact that its several new combinations have not been seen either by compilers of the Index Kewensis or of the Gray Herbarium Index. On the basis of her studies, Miss Mathou recognizes one new section of the genus *Buxus*, maintains two sections in a "sensu novo," and emends a fourth section. In addition two subsections are cited as new and two genera reduced to subsections. No Latin descriptions are given and the names of all subgeneric categories must be regarded as illegitimate. The subgeneric taxa are distinguished by evidence obtained from study of the inflorescences and from the anatomy of the stem and the petiole.

The systematic treatment used by Miss Mathou is subject to criticism. Several new combinations are made correctly but several others are incorrectly made or cited erroneously. Miss Mathou retains or re-establishes taxa previously considered synonyms by earlier workers, without comment or without evidence. The following taxonomic decisions in her paper are worthy of notice:

"*Buxus microphylla* var. *japonica* Rehd. et Wils. comb. nov." (Mathou *loc. cit.* 43). This combination was made by Rehder and Wilson in Sargent, *Plantae Wilsonianae* 2: 168. 1914.

- Buxus longifolia** Boissier var. **latifolia** Mathou, *loc. cit.* 84. 1939. TYPE: *Pr. Lys s.n.*, collected April 1932 near Antioche, Syria.
- Buxus flaviramea** (Britton) Mathou, *loc. cit.* 140. 1939. This combination antedates my own, published in the *Journal of the Arnold Arboretum* 28: 126. 1947.
- Buxus purdieana** Baillon. Mathou recognizes this species although Fawcett and Rendle (*Fl. Jam.* 5: 2. 1926) had placed it in the synonymy of *B. laevigata*. Mathou compares *B. purdieana* with *B. macrophylla* but not with *B. laevigata*.
- "**Buxus citrifolia** (Sprengel) Urban." A combination manufactured by Miss Mathou (*loc. cit.* 195) presumably intended for *Buxus citrifolia* (Willd.) Sprengel.
- Buxus brevipes** (Mueller) Urban (Mathou *loc. cit.* 199). An incorrect citation for *Buxus brevipes* Urban.
- Buxus subcolumnaris** (Mueller) Urban (Mathou *loc. cit.* 214). An incorrect combination for *Buxus subcolumnaris* Muell. Arg.
- Buxus rotundifolia** (Britton) Mathou, *loc. cit.* 229. 1939. This combination antedates that made by Brother Alain (*Contr. Ocas. Mus. Hist. Nat. Col. "De La Salle,"* Havana, No. 12, 2. 1953).
- Buxus pulchella** Baillon. Mathou (*loc. cit.* 242) re-establishes this species. Mueller Arg. had reduced the Baillon species to synonymy under *B. vahlii* Baillon, but Mathou found no support for this decision. Miss Mathou did not compare *B. pulchella* with *B. laevigata* where Fawcett and Rendle (*op. cit.*) had placed Baillon's species.
- Buxus revoluta** (Britton) Mathou, *loc. cit.* 268. 1939. This combination antedates that made by Brother Alain (*loc. cit.* 2. 1953).
- Buxus leoni** (Britton) Mathou, *loc. cit.* 268. 1939. This new combination has not been recorded in international indices. Mathou concluded that in anatomical characteristics *B. leoni* was very similar to *B. aneura*, but that specimens of the latter species could be distinguished on the basis of the pubescent fruit. Miss Mathou also noted the anatomical similarity of *B. leoni* with *B. wrightii*. More recently Alain (*Contr. Ocas. Mus. Hist. Nat. Col. "De La Salle,"* Havana, No. 13, 144. 1953) has placed *Tricera leoni* in the synonymy of *Buxus wrightii*.
- Buxus macowani** var. **benguellensis** (Gilg) Mathou, *loc. cit.* 303. 1939. Miss Mathou has reduced Gilg's species to varietal status and has made the combination.
- Buxus hirta** (Hutchinson) Mathou, *loc. cit.* 306. 1939. The basionym of this new combination is *Buxus benguellensis* Gilg var. *hirta* Hutchinson, *Kew Bull.* 1912: 55. 1912. The combination is cited in *Index Kewensis* as *Mathou in Trav. Lab. For. Toulouse*, Tome I. iii. Art. II, 25. (1940).